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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,733	10/02/2003	Tohru Ishizuya	053847-5003	2939

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EXAMINER

LESTER, EVELYN A

ART UNIT	PAPER NUMBER
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2873

DATE MAILED: 09/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No.	Applicant(s)	
	10/676,733	ISHIZUYA ET AL.	
	Examiner	Art Unit	
	Evelyn A. Lester	2873	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-56 is/are pending in the application.
- 4a) Of the above claim(s) 24-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14, 17-21, 29, 39, 42 and 49 is/are rejected.
- 7) ☒ Claim(s) 15, 16, 22, 23, 28, 30-38, 40, 41, 43-48 and 50-56 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of species V, drawn to an optical element or device as depicted in Figures 26, 36A, 36B, 37-39, 40A, 40B, 42, 43A and 43B, which correspond to claims 1-4, 12-17, 19-23, 27-40, and 43-47, in the reply filed on 5-18-05 is acknowledged. The traversal is basically on the ground(s) that the Examiner stated in the Office Action that there were no generic claims, and the Applicants disagree with this. The argument was found persuasive, therefore the election of species is hereby **withdrawn**.

2. Applicant's election without traverse of Group I (claims 1-23 and 27-56) in the reply filed on 1-11-05 is again acknowledged.

3. Claims 24-26 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 1-11-05.

Priority

4. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

5. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

6. Claims 1-23 and 27-56 are objected to because of the following informalities: The "substrate" of the claims does not coincide with the substrate described in the specification. In the specification, the substrate is the base of the entire invention, as shown for example in Figure 3, element 11. The light reflection portion is connected to the "movable plate," as shown for example in Figure 1, element 21. The claims are not directed to the entire described invention of the specification, but are only directed to the light reflection portion of the entire invention.

Appropriate correction or explanation is required.

Claim Rejections - 35 USC § 112 (First Paragraph)

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 29 and 39 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a groovy structure formed in the support portion,

does not reasonably provide enablement for the groovy structure “in the light reflection portion.” The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims. The specification and drawings clearly describe and depict, respectively, a groovy structure in the support portion. However, a teaching for the groovy structure “in the light reflection portion” could not be found.

Claim Rejections - 35 USC § 112 (Second Paragraph)

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-14 and 17-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claims 1 and 5, at line 7 of each of these claims, there is no antecedent basis for “the other end part.” The configuration of the support portion is not provided in the claims, therefore there is no presumption to support this phrase. Accordingly, when the antecedent basis is corrected in claim 1, then the indefiniteness of claim 5, as well as claims 2-4, 6-14 and 17-19, would be overcome, regarding this limitation of “the other end part.”

With respect to claim 9, line 2, there is no antecedent basis for "at least one such angle holding portion." The antecedent basis for "angle holding portion" is singular, which does not provide for "at least one," which incorporates more than one in its scope.

With respect to claim 13, lines 1-3, there is a contradiction in this claim with claim 12, which it depends. Claim 12 indicates that the thin-film multilevel structure lies in touch with "part of a member constituting said light reflection portion." Claim 13, on the other hand, recites that the thin-film multilevel structure lies in touch with "either said light reflection portion or said support portion."

With respect to claim 19, this claim seems to make no sense at all. For the purposes of this office action, it was interpreted to mean that the light reflection portion has a reflective surface. Though it may be permissible to claim a product with steps of how it is made, it must remain clear that the claim is directed to the product and not the process, for matters of patentability. MPEP 2173.05(p).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 2873

9. Claims 1, 4, 5, 9, 11, 19, 20, 21, 42 and 49, as far as respective claims are understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Garcia (U.S. Patent 6,220,561 B1).

Garcia is interpreted as disclosing the claimed invention, for example as shown in Garcia's Figures 4A-4C, 6A-6C and 7A-7C, and their accompanying text, wherein Garcia's invention has a substrate(40 or 600), a light reflection portion or a flat plate or an optical film which has a desired optical characteristic(41 or 601), a support portion (42, or 610 or 611).

With respect to claims 4 and 5, a "holding portion" is provided by Garcia (as noted in Figures 6A-6C) through the paired action of elements 610 and 611. When one element is acting as the "support portion," (depending on the tilt direction), the other element serves as a "holding portion."

With respect to claim 9, the "holding portion" has one on one side of the of the principal plane of said light reflection portion and another on the other side, as noted in Figures 6A-6C.

With respect to claim 11, please note Figures 7A-7C, for example.

With respect to claim 49, Garcia is interpreted as disclosing the claimed invention, including a substrate(600), an optical element mounted on the substrate, and a suppression portion(610 or 611), wherein the optical element has an optical film having a desired optical characteristic(601) and a support portion(610 or 611). The support portion having a bent film member(610 or 611), wherein the film member has one end part fixed to the substrate and another end part raised by the bent film

member, for example as noted in Figures 7A-7C. The "suppression portion" (as noted in Figures 6A-6C and 7A-7C) is provided through the paired action of elements 610 and 611. When one element is acting as the "support portion," (depending on the tilt direction), the other element serves as a "suppression portion."

Allowable Subject Matter

10. Claims 2, 3, 6-8, 10, 12-14 and 16-18 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

11. Claims 50-56 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. Claims 15, 16, 22, 23, 27, 28, 30-36, 37, 38, 40, 41 and 43-48 are allowed.

13. The following is a statement of reasons for the indication of allowable subject matter:

The prior art does not show or fairly suggest the claimed invention of an optical element/device or thin film structure or optical switch having the claimed structure and claimed limitations, wherein a rejection under 35 USC 102 or 103 would be improper.

Please particularly note the combination of claimed elements and claimed limitations, including:

As recited in claim 2, wherein the support portion supports the light reflection portion or film in a perpendicular position to the principal plane of the substrate. Garcia's invention could not be held in this position.

As recited in claim 3, the support portion is constructed of a multilayer film wherein at least two films have a different coefficient of thermal expansion. Though Garcia's support portion has multilayer portions, there is no clear teaching or implication regarding the coefficient of thermal expansion of each layer.

As recited in claim 6, wherein the claimed invention incorporates a "angle holding portion" which lies in touch with either the light reflection portion or the support portion, and the angle holding portion includes positional shift prevention means.

As recited in claim 8, the angle holding portion has a specific configuration, including being perpendicular to the principal plane of the light reflection portion and a side surface of the film of the angle holding portion lies in touch with the light reflection portion.

As recited in claim 10, a sense of bending of the film of the angle holding portion is given, as well as a second light reflection portion being included in a particular arrangement with respect to the angle holding portion and the first light reflection portion.

As recited in claim 12, wherein details of the holding portion are provided, including that the holding portion is thin-film multilevel structure.

As recited in claim 15, the combination of details, including that the support portion has at least two coupled members, and wherein the two are joined through each other.

As recited in claim 17, wherein the light reflection portion is formed of a stepped structure.

As recited in claim 18, wherein the claimed invention incorporates a temperature regulation portion to regulate the support portion.

As recited in claims 22 and 23, wherein the optical switch has a mirror portion and a movable portion. Claim 23 further includes the support portion having at least two coupled members, wherein the two are joined through each other.

As recited in claims 27 and 37, the invention includes a combination of claimed limitations and elements already described above, including a mirror portion, a movable portion and a holding portion, wherein the holding portion is a thin-film multilevel structure, which has specific details.

As recited in claim 41, an optical switch having a substrate, a movable portion which has at least two films that are bent by internal stresses to thereby raise the mirror portion to a perpendicular position with respect to the substrate's principal plane, wherein the light reflection portion has a particular state and position recited.

As recited in claim 43, an optical device having an optical element, a movable portion, wherein the movable portion has a part near a fixed end part which is formed of a stacked structure being bent by an internal stress, and the movable portion being

formed with a stepped structure along a peripheral edge of the part bearing the optical element.

As recited in claim 45, an optical device having an optical element, a movable portion, wherein the movable portion has a part near a fixed end part which is formed of a stacked structure being bent by an internal stress, wherein the stacked structure includes a metal film having a predetermined pattern to facilitate an electrostatic force.

Therefore, the claimed invention is considered to be allowable as being novel and nonobvious over the prior art.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following are U.S. Patents/Publications directed to optical elements/devices having a microelectromechanical configuration:

Kiang et al	U.S. Patent 5,867,297
Carr et al	U.S. Patent 5,870,007
Motamedi et al	U.S. Patent 5,903,380
Roberson et al	U.S. Patent 6,137,623
Zavracky et al	U.S. Patent 6,153,839
Goodwin-Johansson	U.S. Patent 6,236,491 B1
Sinclair	U.S. Patent 6,275,325 B1
Goldstein et al	U.S. Patent 6,292,600 B1
Biegelsen	U.S. Patent 6,299,462 B1
Aksyuk et al	U.S. Patent 6,366,414 B1
Lee	U.S. Patent 6,445,488 B1
Goodwin-Johansson	U.S. Patent 6,456,420 B1
Swanson	U.S. Patent 6,538,796 B1
Goldstein et al	U.S. Patent 6,556,318 B1
Hanson et al	U.S. Patent 6,608,714 B2
Rosa et al	U.S. Patent 6,654,155 B2
Park	U.S. Patent 6,728,017 B2
Miller et al	U.S. Patent 6,831,391 B2


Ishizuya et al
Yoon et al

U.S. Patent Pub. US 2004/0114259 A1
U.S. Patent Pub. US 2004/0246558 A1

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Evelyn A. Lester whose telephone number is (571) 272-2332. The examiner can normally be reached on subject to an increased flex schedule, M-F, 10-7pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Y. Epps can be reached on (571) 272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Evelyn A. Lester
Primary Examiner
Art Unit 2873